



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,331	02/04/2002	Gunter Kunze	72.053	9486
23598	7590	06/29/2006	EXAMINER	
BOYLE FREDRICKSON NEWHOLM STEIN & GRATZ, S.C. 250 E. WISCONSIN AVENUE SUITE 1030 MILWAUKEE, WI 53202			SOOHOO, TONY GLEN	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/937,331	KUNZE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tony G. Soohoo	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 20 June 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 13-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 13-21 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 29 August 1951 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                     | Paper No(s)/Mail Date. _____ .  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____ .                                  |

## **DETAILED ACTION**

### ***Claim interpretation***

1. The term “densified state” is read in its broadest reasonable interpretation in light of the specification as being directed to the degree in which the material has settled or set, in other words, the amount of air bubbles/void is being removed by the vibration device, or the amount the concrete slurry is compacted or set. This is in contrast to the actual “density” of the hardened/cured (hardening?) material
2. The production of the “signal based on a measured change in the operating parameter” is read in its broadest reasonable interpretation in light of the specification as being broad to encompass a visual signal processed by in a visual change within a display device, or an electrical signal from the sensor itself.
3. The recitation of “[an evaluation circuit] … that produces a signal based on a measured change in the [of the motion of the vibration unit] that corresponds to a change in a densified state of the material”, is read as only requiring the scope of a structure of an 1)evaluation circuit which produces 2) a signal based on 3)the change of the motion of the vibrator. Issues of the scope of the particular type of motion “that corresponds to a change in densified state of material” is deemed as being directed to the intended use and interpretation of the signal by a user.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 13-17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Miura et al 4905499. (Newly cited).

The Miura et al '499 reference discloses a electrically driven vibration unit 1A,13, which is capable of measuring the densified state of a fluid as it sets 9, a switching unit 11 with a circuit PC which takes the measured value of a frequency/phase/motion of the vibrator, see figure 11 and produces a signal to a display which may be interpreted by a user to indicated the densified state of the material, which was measured by the measurement device 1B. It is noted that measurement device 1B measures the motion of the vibrator, especially the probe 3 immersed in the fluid.

6. Claims 13-14, 21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by GB 1097651, (GB '651) cited on PTO 1449.

The GB '651 reference discloses a vibration unit 8, switch 10, a measuring device 3 for determining the power load which provides an indication of a meter reading signal so one may evaluate the measured value.

Art Unit: 1723

Note that the meter reading may be used as an indicator of RPM which directly measures the frequency of motion in which the vibrator vibrates in a "motion of the vibrator" and that the movement of the vibrator and movement of meter reading electrical and visual signal would provide for a person having ordinary skill in the art a manner to determine the change in the density state of the concrete that it is setting and that the removal of air bubbles is being achieved.

7. Claims 13-17, 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Heimbruch et al 5992238.

The Heimbruch (et al '238) reference discloses an electrically driven vibration unit 13, electric motor 18, switch to turn the motor on and off (not shown but assumed as inherent for all power drive motors), a measuring device (magnetic pickup sensor 40 and permanent magnet 42 or Hall type sensor) for determining the vibration speed of the vibrator which provides an indication of an electrical reading signal so one may evaluate the measured value by the display 66, and recorder 102. Any change in speed is a measurement of acceleration and thus has a direct correlation to the movement of the vibrator and would indicate "a change in densified state" of the material, i.e. the degree in which the material is being compacted, see column 1, lines 43-45.

Note that the meter reading may be used as an indicator signal of movement of the vibrator and that the changes of the meter indicator would provide for a person having ordinary skill in the art a visual signal a manner to determine the change in the

Art Unit: 1723

density state of the concrete that it is hardening, see also column 1, lines 35-46 and column 6, lines 8-24.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al 4905499.

The Miura et al '499 reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of having the measurements utilizing the sensing meters of a and b, figures 3 to 7, positioned in perpendicular axes of the longitudinal axis of the vibration unit as recited in claims 18-20,

With regards to the use of accelerometers, such device measurement is fully capable of being measured by the piezoelectric ceramic members a and b, figures 3 to 7, by a mere measurement of the change of velocity of change of the values measured by the elements a and b. With regards to the positioning of the meters on a perpendicular orientation, the Miura et al reference discloses at least a transverse skewed orientation, the positioning of meters in a perpendicular orientation is old and well known, such as the art of measurement with strain gauges for ease of calibration, thus, It is deemed that it would have been obvious to one of ordinary skill in the art to

utilize the sensors measuring devices as plural accelerometers, and position them in a perpendicular axe so as to provide a more precise measurement of vibration and provide a easier manner to calibrate the sensors.

10. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heimbruch et al 5992238.

The Heimburch et al reference discloses all of the recited subject matter as defined within the scope of the claims with the exception of having the measurements utilizing accelerometers positioned in perpendicular axes of the longitudinal axis of the vibration unit as recited in claims 18-20.

With regards to the use of accelerometers, such device are old and well known in the art of vibration and speed measurement and the positioning of such meters upon perpendicular axes are well known as pointed out above,

Accordingly ,it is deemed that it would have been obvious to one of ordinary skill in the art to substitute for the Hall sensors of measuring devices with plural accelerometers positioned in perpendicular axes so as to provide a more precise measurement of vibration and ease of calibration

### ***Response to Arguments***

11. Applicant's arguments filed 06-02-2006 have been fully considered but they are not persuasive.

Applicant argues with regards that GB 1097651 (GB '651) and the Heimbruch et al. (Heimbruch) references that does not disclose the claimed language of claim

13. Applicant alleges that (quote) "

Rather,

the cited GB '651 appears to disclose some kind of comparator circuit configured to produce a signal based on a measured power consumption of a motor relative to a threshold value that corresponds to a degree of achieved compaction (see page 1, line 84 – page 2, line 16). The GB '651 patent does not teach or suggest measurement of a motion-type parameter, and so certainly does not teach or suggest a signal produced based on a change in a motion-type parameter that corresponds to a change in a densified state of the material as recited in claim 13.

(end quote)"

In response the GB '651 reference discloses a measurement of the RPM which is indicative of the vibrator motion thus, while not a direct measurement of the motion of the vibrator, it is a signal measurement of an operating parameter that corresponds to a change of the degree of compaction, GB '651, page 1, line 25. in which the vibration motion.

Applicant argues that the Heimbruch et al reference doe not disclose any correlation of the vibrating speed to a density of the compaction of the concrete. In response, the a measuring device (magnetic pickup sensor 40 and permanent magnet 42 or Hall type sensor) for determining the vibration speed of the vibrator which provides an indication of an electrical reading signal so one may evaluate the measured

value by the display 66, and recorder 102. Note that the meter reading may be used as an indicator of the movement of the vibrator. The interpretation of the signal and what other physical properties to the concrete "corresponds to" is deemed as being directed to an intended use of the signal and has not been positively claimed in such a manner which affords a structural limitation.

It is noted that in all cases of the above rejection, each of the references has structure to measure a physical movement or property which corresponds to the amount of motion the vibrator. "Apparatus claims cover what a device *is*, not what a device *does*" (emphasis in original) *Hewlett-Packard v. Bausch & Lomb Inc.* 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Each of the devices provides a manner to ultimately sense the motion of the vibrator. This corresponding signal is produced. The signal is recorded or provided upon a meter. Thus, structural elements required by the claim has been provided. With regards to the intended use signal, there is no patentable distinction to the intended use of the signal. Nonetheless, a user may look at the record, or visually inspect the meter, and thus determine any state of change of the concrete provided by that signal. Examples are that there is a change in densified state in the material, air bubbles are being released thereby causing the concrete to compact and thicken in density within the form, concrete is getting harder, the concrete is setting, the concrete is compacting.

***Response to the Declaration***

12. The Declaration under 37 CFR 1.132 filed 8-29-2005 is sufficient to overcome provide a best mode of carrying out the invention only to the scope one the device may the present invention to only measure a thickening or change of density. However, it is noted that the original disclosure or declaration does not point out data values, formula, or tables of determining the mapping correspondence of: an actual densified material numerical in correlation of any flowing material to a vibrator characteristic of any of the following: acceleration, or motion, or oscillatory frequency, or oscillatory amplitude, or RPM of the motor, or electric excitation frequency of the motor, or winding temperature of a stator of the motor, or motion of the vibrator.

A statement has been made by applicant that one may sufficiently enable the invention by reading applicant's own disclosure. Also applicant admits that one may easily perform tests and data to determine such a correspondence between a vibrator motion and degree of compaction/densifying state. Applicant considers this as being routine. Applicant has admitted on the record that any determination of a correspondence of the densification in correlation with an operating parameter of the vibrator is within the skill of a person having ordinary skill in the art . "Creating maps or algorithms from acquired data as described in that passage is a routine".

3. Creating maps or algorithms from acquired data as described in that passage is a routine task for me and, I believe, others skilled in the art. To create a densification map, all one need to do is to conduct a preliminary test by measuring density during operation of a poker vibrator using known techniques to measure concrete density and to observe, for each measuring incremental densification level, a corresponding vibrator operational parameter such as acceleration. The observed operational parameter can then be tabulated or "mapped" for an entire range of

As such, it is deemed that such a mapping function circuit is merely an automated bookkeeping accounting of data values in direct correspondence to the another data values for interpretation, thus is a routine task for a person having ordinary skill in the art without undue experimentation. Thus the best mode rejection is hereby withdrawn.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following disclose device which has a vibrator unit and measures a motion property of the vibration unit to send a signal which corresponds to a characteristic of the fluid material in which the vibration unit is immersed: Rork et al 3909732 a vibratory densitometer. Miura et al 4811592 and 4811593 and 5723771, Langdon 4240285, Kauzlarich 5571952.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony G. Soohoo whose telephone number is (571) 272 1147. The examiner can normally be reached on 7-5PM,Tue-Fri.

Art Unit: 1723

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tony G Soohoo  
Primary Examiner  
Art Unit 1723

**TONY G. SOOHOO**  
**PRIMARY EXAMINER**